

Atty. Docket No. 572.007

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. **(Currently Amended)** A method of processing a fluid, comprising:

 ~~mixing~~ atomizing said fluid ~~with~~ in a supercritical fluid medium to dissolve at least one component in the fluid to be processed;

 applying thermal energy to said fluid;

 allowing undissolved components to settle; and

 separating said dissolved components from said supercritical fluid.
2. **(Currently Amended)** The method of Claim 1, wherein said ~~mixing~~ atomization is accomplished by dynamic ~~mixing~~ atomization.
3. **(Currently Amended)** The method of Claim 2, wherein said method additionally comprises the step of utilizing jet spray orifices during said ~~mixing~~ atomization step.
4. **(Canceled)** The method of Claim 2, wherein said method additionally comprises the step of utilizing a magneto drive during said mixing step.

Atty. Docket No. 572.007

5. **(Currently Amended)** The method of Claim 2, wherein said method additionally comprises the step of adding sonic energy during said ~~mixing~~ atomization step.

6. **(Currently Amended)** The method of claim 1, wherein the thermal energy is applied after ~~mixing~~ atomizing said fluid ~~with~~ in the supercritical fluid.

7. **(Currently Amended)** The method of claim 1, wherein the thermal energy ~~is~~ is applied to the fluid to be processed before ~~mixing~~ atomizing said fluid ~~with~~ in the supercritical fluid

8. **(Original)** The method of Claim 1, wherein the supercritical fluid is selected from a group consisting of CO₂, N₂O, NH₃, C H₄, C₂ H₆, C₃ H₈, C₄ H₁₀, C₅ H₁₂, SF₆, Xe, CCl₂F₂, and H₂O.

9. **(Original)** The method of Claim 1, additionally comprising the step of adding a modifier to enhance the solubility of the supercritical fluids.

10. **(Original)** The method of Claim 1, additional comprising the step of recycling said supercritical fluid.

11. **(Withdrawn)** An apparatus for the continuous processing of fluids, comprising:

a sub-system in which a fluid to be processed is mixed with a supercritical fluid;

a thermal energy source for providing thermal energy to said sub-system;

at least one vessel for separating out desired components of said fluid to be processed.

12. **(Withdrawn)** The apparatus of Claim 11, wherein said sub-system includes a co-flow reactor.

13. **(Withdrawn)** The apparatus of Claim 12 wherein said co-flow reactor includes jet spray orifices utilized in mixing said fluid to be processed with said supercritical fluid.

14. **(Withdrawn)** The apparatus of Claim 12, wherein said co-flow reactor includes a magneto drive utilized in mixing said fluid to be processed with said supercritical fluid.

15. **(Withdrawn)** The apparatus of Claim 12, wherein said co-flow reactor includes a sonic energy generator utilized in mixing said fluid to be processed with said supercritical fluid.

16. **(Withdrawn)** The apparatus of Claim 11, wherein said sub-system includes a counter-flow reactor.

17. **(Withdrawn)** The apparatus of Claim 16, wherein said counter-flow reactor includes jet spray orifices utilized in mixing said fluid to be processed with said supercritical fluid.

18. **(Withdrawn)** The apparatus of Claim 16, wherein said counter-flow reactor includes a sonic energy generator utilized in mixing said fluid to be processed with said

Atty. Docket No. 572.007

supercritical fluid.

19. **(Withdrawn)** An apparatus for the continuous processing of fluids, comprising:

a thermal energy source for providing thermal energy to a fluid to be processed;

a sub-system in which the fluid to be processed is mixed with a supercritical fluid;

at least one vessel for separating out desired components of said fluid to be processed.

20. **(Withdrawn)** The apparatus of Claim 19, wherein said sub-system includes a co-flow reactor.

21. **(Withdrawn)** The apparatus of Claim 20, wherein said co-flow reactor includes jet spray orifices utilized in mixing said fluid to be processed with said supercritical fluid.

22. **(Withdrawn)** The apparatus of Claim 20, wherein said co-flow reactor includes a magneto drive utilized in mixing said fluid to be processed with said supercritical fluid.

23. **(Withdrawn)** The apparatus of Claim 20, wherein said co-flow reactor includes a sonic energy generator utilized in mixing said fluid to be processed with said supercritical fluid.

24. **(Withdrawn)** The apparatus of Claim 19, wherein said sub-system includes a

Atty. Docket No. 572.007

counter-flow reactor.

25. **(Withdrawn)** The apparatus of Claim 24, wherein said counter-flow reactor includes jet spray orifices utilized in mixing said fluid to be processed with said supercritical fluid.

26. **(Withdrawn)** The apparatus of Claim 24, wherein said counter-flow reactor includes a sonic energy generator utilized in mixing said fluid to be processed with said supercritical fluid.